Center Initiated Projects

Cardiovascular Disease	Cell Differentiation	Molecular Networks
This CIP studies matched set of iPSC lines from patients with cardiovascular disease and the corresponding whole genome sequences and genome-wide expression analyses. The primary goal of this CIP is to establish a biobank of extensively well-characterized iPSC lines and to validate the utility of this resource by modeling two highly prevalent familial forms of cardiovascular disease, DCM and HCM, and performing drug screening studies. This CIP will also investigate genome stability of iPSC lines, which is crucial for understanding their therapeutic value.	This CIP systematically characterizes the heterogeneous cell subpopulations within normal and pathological tissues of the human brain and pancreas, and determining the gene expression and epigenetic properties of each member of the organ lineage tree, from stem cells to terminally differentiated cells. Using this data, this project will compare the stem cell differentiation hierarchy of normal tissues to that of the disease states to elucidate underlying mechanisms of pathogenesis, and identify gene expression and epigenetic markers for premalignant or malignant stem cell contaminating cell products intended for patient clinical trials.	Cellular differentiation and maintenance of pluripotency involve a complex series of events governed by molecular networks. The overall objective of this Center-Initiated Project is to develop a suite of bioinformatics tools and resources for advanced analysis of -omics data generated by the CIRM Genome Center, with the goals of formulating molecular network models and guiding predictions of cell fate.
Team	**Team**	**Team**
Michael Snyder (Stanford) Kristin Baldwin (SCRI) Carlos Bustamante (Stanford) Joseph Wu (Stanford) David Haussler (UCSC)	Stephen Quake (Stanford) Michael Clarke (Stanford)	Trey Ideker (UCSD) Mark Adams (J. Craig Venter Institute) Richard Scheuermann (J. Craig Venter Institute) Josh Stuart (UCSC)

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